

1. A method for identifying a candidate agent that inhibits the binding of LBP-2 to an LBP-2 binding molecule, the method comprising:

contacting *in vitro* an LBP-2 polypeptide, an LBP-2 binding molecule, and a candidate agent; and

5 measuring the formation of a complex containing the LBP-2 polypeptide and the LBP-2 binding molecule, wherein a reduction in the formation of the complex in the presence of the candidate agent as compared with in the absence of the candidate agent indicates that the candidate agent inhibits the binding of LBP-2 to the LBP-2 binding molecule.

10 2. The method of claim 1, wherein the LBP-2 binding molecule is low density lipoprotein (LDL).

3. The method of claim 2, wherein the LDL is native LDL.

15 4. The method of claim 2, wherein the LDL is modified LDL.

5. The method of claim 4, wherein the modified LDL is methylated LDL or oxidized LDL.

20 6. The method of claim 1, wherein the LBP-2 binding molecule is an extracellular matrix component.

25 7. The method of claim 6, wherein the extracellular matrix component is a proteoglycan.

8. The method of claim 1, wherein the formation of the complex is measured by an affinity coelectrophoresis (ACE) assay.

30 9. The method of claim 1, wherein the formation of the complex is measured by an enzyme-linked immunosorbent assay (ELISA).

10. The method of claim 1, wherein the LBP-2 polypeptide comprises an amino acid sequence that binds to LDL and:

has at least 80% sequence identity to the amino acid sequence of SEQ ID NO:7;
5 is identical to a fragment of at least ten amino acid residues of SEQ ID NO:7; or
differs by one or more conservative amino acid substitutions from the amino acid sequence of SEQ ID NO:7.

11. The method of claim 1, wherein the LBP-2 polypeptide comprises the amino
10 acid sequence of SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, or SEQ ID NO:22.

12. The method of claim 1, wherein the LBP-2 polypeptide comprises the amino acid sequence of SEQ ID NO:7.

13. The method of claim 1, wherein the LBP-2 polypeptide comprises an amino
15 acid sequence that binds to LDL and:
has at least 80% sequence identity to the amino acid sequence of SEQ ID NO:43;
is identical to a fragment of at least ten amino acid residues of SEQ ID NO:43; or
differs by one or more conservative amino acid substitutions from the amino acid
20 sequence of SEQ ID NO:43.

14. The method of claim 1, wherein the LBP-2 polypeptide comprises the amino acid sequence of SEQ ID NO:43.

15. The method of claim 1, wherein the candidate agent is an LBP-2 fragment,
25 analog or mimetic.

16. The method of claim 1, wherein the candidate agent is a nucleic acid,
antibody, metabolite, carbohydrate, glycoprotein, peptide, or non-peptide mimetic.

30

17. The method of claim 1, wherein the LBP-2 polypeptide is immobilized on a surface during the contacting step.

18. The method of claim 1, wherein the LBP-2 binding molecule is immobilized
5 on a surface during the contacting step.

19. The method of claim 1, wherein the LBP-2 polypeptide is expressed on the surface of a cell.

10 20. The method of claim 18, wherein the cell is a cell line transfected with an expression vector encoding a protein comprising the LBP-2 polypeptide.

21. The method of claim 1, further comprising administering to an animal a therapeutically effective amount of a candidate agent identified as inhibiting the binding
15 of LBP-2 to the LBP-2 binding molecule, wherein the administration of the candidate agent treats or prevents atherosclerosis in the animal.

22. The method of claim 1, further comprising:
administering to an animal a candidate agent identified as inhibiting the binding
20 of LBP-2 to the LBP-2 binding molecule; and
evaluating the effect of the administration in treating or preventing atherosclerosis in the animal.

23. The method of claim 22, wherein the method comprises evaluating the effect
25 of the administration on arterial LDL or cholesterol content in the animal.

24. The method of claim 22, wherein the method comprises evaluating the effect of the administration on the development of atherosclerotic lesions in the animal.

30 25. A method for identifying a candidate agent that binds to LBP-2, the method comprising:

contacting *in vitro* a candidate agent and an LBP-2 polypeptide; and
measuring the binding of the candidate agent to the LBP-2 polypeptide.

5

26. The method of claim 25, wherein the binding is measured by an ACE assay.

27. The method of claim 25, wherein the binding is measured by an ELISA.

28. The method of claim 25, wherein the LBP-2 polypeptide comprises an amino
acid sequence that binds to LDL and:

10 has at least 80% sequence identity to the amino acid sequence of SEQ ID NO:7;
is identical to a fragment of at least ten amino acid residues of SEQ ID NO:7; or
differs by one or more conservative amino acid substitutions from the amino acid
sequence of SEQ ID NO:7.

15 29. The method of claim 25, wherein the LBP-2 polypeptide comprises the amino
acid sequence of SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, or SEQ ID NO:22.

30. The method of claim 25, wherein the LBP-2 polypeptide comprises the amino
acid sequence of SEQ ID NO:7.

20

31. The method of claim 25, wherein the LBP-2 polypeptide comprises an amino
acid sequence that binds to LDL and:

25 has at least 80% sequence identity to the amino acid sequence of SEQ ID NO:43;
is identical to a fragment of at least ten amino acid residues of SEQ ID NO:43; or
differs by one or more conservative amino acid substitutions from the amino acid
sequence of SEQ ID NO:43.

32. The method of claim 25, wherein the LBP-2 polypeptide comprises the amino
acid sequence of SEQ ID NO:43.

30

33. The method of claim 25, wherein the candidate agent is a nucleic acid, antibody, metabolite, carbohydrate, glycoprotein, peptide, or non-peptide mimetic.

34. The method of claim 25, wherein the LBP-2 polypeptide is immobilized on a
5 surface during the contacting step.

35. The method of claim 25, wherein the LBP-2 polypeptide is expressed on the surface of a cell.

10 36. The method of claim 35, wherein the cell is a cell line transfected with an expression vector encoding a protein comprising the LBP-2 polypeptide.

37. The method of claim 25, further comprising administering to an animal a therapeutically effective amount of a candidate agent identified as binding to the LBP-2
15 polypeptide, wherein the administration of the candidate agent treats or prevents atherosclerosis in the animal.

38. The method of claim 25, further comprising:
administering to an animal a candidate agent identified as binding to the LBP-2
20 polypeptide; and
evaluating the effect of the administration in treating or preventing atherosclerosis in the animal.

39. The method of claim 38, wherein the method comprises evaluating the effect
25 of the administration on arterial LDL or cholesterol content in the animal.

40. The method of claim 38, wherein the method comprises evaluating the effect of the administration on the development of atherosclerotic lesions in the animal.

30 41. A method for identifying a candidate agent that binds to an LBP-2 regulatory nucleic acid sequence, the method comprising:

contacting *in vitro* a candidate agent and an LBP-2 regulatory nucleic acid sequence; and

measuring the binding of the candidate agent to the LBP-2 regulatory nucleic acid sequence.

5

42. The method of claim 41, wherein the binding is measured by a DNA mobility shift assay.

43. The method of claim 41, wherein the binding is measured by DNaseI footprint analysis.

10

44. The method of claim 41, wherein the candidate agent is a nucleic acid, antibody, metabolite, carbohydrate, glycoprotein, peptide, or non-peptide mimetic.

15

45. The method of claim 41, further comprising administering to an animal a therapeutically effective amount of a candidate agent identified as binding to an LBP-2 regulatory nucleic acid sequence, wherein the administration of the candidate agent treats or prevents atherosclerosis in the animal.

20

46. The method of claim 41, further comprising:
administering to an animal a candidate agent identified as binding to an LBP-2 regulatory nucleic acid sequence; and
evaluating the effect of the administration in treating or preventing atherosclerosis in the animal.

25

47. The method of claim 46, wherein the method comprises evaluating the effect of the administration on arterial LDL or cholesterol content in the animal.

48. The method of claim 46, wherein the method comprises evaluating the effect of the administration on the development of atherosclerotic lesions in the animal.

30

49. A method for identifying a candidate agent that modulates LBP-2 metabolism or structure, the method comprising:

contacting a candidate agent and an LBP-2 polypeptide; and
evaluating the effect of the candidate agent on LBP-2 metabolism or structure.

5

50. The method of claim 49, wherein the candidate agent and the LBP-2 polypeptide are contacted *in vitro*.

51. The method of claim 50, wherein the candidate agent and the LBP-2
10 polypeptide are contacted in a cell free system.

52. The method of claim 50, wherein the candidate agent is contacted with a test cell expressing the LBP-2 polypeptide.

53. The method of claim 52, wherein the LBP-2 polypeptide is expressed on the
15 surface of the test cell.

54. The method of claim 53, wherein the test cell is a cell line transfected with an expression vector encoding a protein comprising the LBP-2 polypeptide.

20

55. The method of claim 49, wherein the candidate agent and the LBP-2 polypeptide are contacted in an animal.

56. The method of claim 49, wherein the candidate agent is an LBP-2 fragment,
25 analog or mimetic.

57. The method of claim 49, wherein the candidate agent is a nucleic acid, antibody, metabolite, carbohydrate, glycoprotein, peptide, or non-peptide mimetic.

58. The method of claim 49, wherein the method comprises evaluating the effect
30 of the candidate agent on the primary, secondary, or tertiary structure of LBP-2.

59. The method of claim 49, wherein the method comprises evaluating the effect of the candidate agent on conformational folding of LBP-2.

5 60. The method of claim 49, wherein the method comprises evaluating the effect of the candidate agent on LBP-2 expression.

61. The method of claim 49, wherein the method comprises evaluating the effect of the candidate agent on the release of LBP-2.

10

62. The method of claim 49, wherein the method comprises evaluating the effect of the candidate agent on the distribution of LBP-2.

63. The method of claim 49, further comprising administering to an animal a
15 therapeutically effective amount of a candidate agent identified as modulating LBP-2 metabolism or structure, wherein the administration of the agent treats or prevents atherosclerosis in the animal.

64. The method of claim 49, further comprising:
20 administering to an animal a candidate agent identified as modulating LBP-2 metabolism or structure; and
 evaluating the effect of the administration in treating or preventing atherosclerosis in the animal.

25 65. The method of claim 64, wherein the method comprises evaluating the effect of the administration on arterial LDL or cholesterol content in the animal.

66. The method of claim 64, wherein the method comprises evaluating the effect of the administration on the development of atherosclerotic lesions in the animal.

30